



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2021-1061; Project Identifier AD-2021-01192-E; Amendment 39-21853; AD 2021-23-51]**

**RIN 2120-AA64**

#### **Airworthiness Directives; General Electric Company Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain General Electric Company (GE) CF34-8C and CF34-8E model turbofan engines. This AD was prompted by an in-flight shutdown of an engine and subsequent investigation by the manufacturer that revealed a broken variable geometry (VG) actuator rod end caused by corrosion and seizure of the rod end bearing. This AD requires performing an inspection of the master compressor VG actuator and slave compressor VG actuator and, depending on the results of the inspection, replacement of the part with a part eligible for installation. This AD also requires reporting the results of the inspection to GE. The FAA previously sent an emergency AD to all known U.S. owners and operators of these GE CF34-8C and CF34-8E model turbofan engines and is now issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Emergency AD 2021-23-51, issued on November 4, 2021, which contained the requirements of this amendment, was effective with actual notice.

The Director of the Federal Register approved the incorporation by reference of certain publications identified in this AD as of [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The FAA must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this final rule, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com); website: <https://www.ge.com>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-1061.

#### **Examining the AD Docket**

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-1061; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The street address for Docket Operations is listed above.

**FOR FURTHER INFORMATION CONTACT:** Scott M. Stevenson, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7132; fax: (781) 238-7199; email: [scott.m.stevenson@faa.gov](mailto:scott.m.stevenson@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Background**

On November 4, 2021, the FAA issued Emergency AD 2021-23-51 (the emergency AD), which requires performing an inspection of the master compressor VG actuator and slave compressor VG actuator and, depending on the results of the inspection, replacement of the part with a part eligible for installation. The emergency AD also requires reporting the results of the inspection to GE. The FAA sent the emergency AD to all known U.S. owners and operators of these engines. This action was prompted by an event on August 11, 2021, in which a Bombardier CRJ1000 airplane, powered by GE CF34-8C5 model engines, experienced an in-flight engine shutdown that resulted in a diversion. The manufacturer's investigation found that these engines were parked outdoors for extended lengths of time within 10 miles (16 km) from a saltwater coastline. These conditions caused corrosion to develop on the compressor VG actuator rod end bearing, which restricted the motion in the bearing leading to an elevated stress in the rod end. Subsequently, the higher stress cracked the rod end which eventually fractured. This condition, if not addressed, could result in failure of one or more engines, loss of engine thrust control, and reduced control of the airplane.

### **FAA's Determination**

The FAA is issuing this AD because the agency evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

### **Related Service Information under 1 CFR Part 51**

The FAA reviewed GE CF34-8C Service Bulletin (SB) 75-0028 R00 and GE CF34-8E SB 75-0023 R00, both dated November 2, 2021. These SBs specify procedures for performing a one-time inspection of the master compressor VG actuator and slave compressor VG actuator, differentiated by engine model, to identify possible rod end corrosion or seizure. These SBs also instruct operators to report the inspection results to GE. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

## **AD Requirements**

This AD requires performing an inspection of the master compressor VG actuator and slave compressor VG actuator and, depending on the results of the inspection, replacement of the part with a part eligible for installation. This AD also requires reporting the results of the inspection to GE.

## **Interim Action**

The FAA considers this AD to be an interim action. The FAA anticipates that further AD action will follow.

## **Justification for Immediate Adoption and Determination of the Effective Date**

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for “good cause,” finds that those procedures are “impracticable, unnecessary, or contrary to the public interest.” Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

An unsafe condition exists that required the immediate adoption of Emergency AD 2021-23-51, issued on November 4, 2021, to all known U.S. owners and operators of these engines. The FAA found that the risk to the flying public justified waiving notice and comment prior to adoption of this rule. On August 11, 2021, a Bombardier CRJ1000 airplane, powered by GE CF34-8C5 model engines experienced an in-flight engine shutdown caused by compressor VG actuator rod end failure due to corrosion and seizure. This unsafe condition, caused by corrosion and seizure of the compressor VG actuator rod end bearing, may result in failure of one or more engines, loss of engine thrust control, and reduced control of the airplane.

The FAA considers inspection of the compressor VG actuator rod end bearings to be an urgent safety issue. Inspection of the compressor VG actuator rod end bearings must be accomplished before accumulating 30 flight hours or within 5 calendar days on one engine installed on an airplane. The other engine on the same airplane that has already had an engine inspected must be inspected before accumulating 350 FHs or

within 60 calendar days. These conditions still exist, therefore, notice and opportunity for prior public comment are impracticable and contrary to the public interest pursuant to 5 U.S.C. 553(b)(3)(B).

In addition, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days, for the same reasons the FAA found good cause to forego notice and comment.

### **Comments Invited**

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-1061; Project Identifier AD-2021-01192-E” at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

### **Confidential Business Information**

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Scott M. Stevenson,

Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

### **Regulatory Flexibility Act**

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without prior notice and comment, RFA analysis is not required.

### **Costs of Compliance**

The FAA estimates that this AD affects 2 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspect master compressor VG actuator and slave compressor VG actuator	2 work-hours x \$85 per hour = \$170	\$0	\$170	\$340
Report results of inspection	1 work-hour x \$85 per hour = \$85	\$0	\$85	\$170

The FAA estimates the following costs to do any necessary replacement that would be required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need this replacement:

#### **On-condition costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>
Replace master compressor VG actuator and slave compressor VG actuator	2 work-hours x \$85 per hour = \$170	\$18,890	\$19,060

## **Paperwork Reduction Act**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

## **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the

national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a “significant regulatory action” under Executive Order 12866,

(2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **The Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

**2021-23-51 General Electric Company:** Amendment 39-21853; Docket No. FAA-2021-1061; Project Identifier AD-2021-01192-E.

#### **(a) Effective Date**

The FAA issued emergency airworthiness directive (AD) 2021-23-51, on November 4, 2021 directly to affected owners and operators. As a result of such actual notice, that AD was effective for those owners and operators on the date it was provided. This AD contains the same requirements as that emergency AD and, for those who did not receive actual notice, is effective on [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.



**(c) Applicability**

This AD applies to General Electric Company (GE) CF34-8C1, CF34-8C5, CF34-8C5A1, CF34-8C5A2, CF34-8C5A3, CF34-8C5B1, CF34-8E2, CF34-8E2A1, CF34-8E5, CF34-8E5A1, CF34-8E5A2, CF34-8E6, and CF34-8E6A1 model turbofan engines installed on an airplane that has accumulated more than 250 parked days outdoors in the last 24 months within 10 miles (16 km) from a saltwater coastline.

Note 1 to paragraph (c): A “parked day” is 24 consecutive hours with no engine operation.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compression Section.

**(e) Unsafe Condition**

This AD was prompted by an in-flight shutdown of an engine and subsequent investigation by the manufacturer that revealed a broken variable geometry (VG) actuator rod end caused by corrosion and seizure of the rod end bearing. The FAA is issuing this AD to detect corrosion and seizure of the rod end bearing. The unsafe condition, if not addressed, could result in failure of one or more engines, loss of engine thrust control, and reduced control of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

(1) On one engine installed on an airplane, before accumulating 30 flight hours (FHs) or within 5 calendar days, whichever occurs first after the effective date of this AD, perform an inspection of the master compressor VG actuator, significant item number (SIN) 30401, and slave compressor VG actuator, SIN 30402, in accordance with the Accomplishment Instructions, paragraphs 3.A.(1) and (2), of GE CF34-8C Service Bulletin (SB) 75-0028 R00 (GE CF34-8C SB 75-0028) or GE CF34-8E SB 75-0023 R00 (GE CF34-8E SB 75-0023), both dated November 2, 2021, as applicable to the engine model.

(2) On the other engine installed on the airplane, not inspected as required by paragraph (g)(1) of this AD, before accumulating 350 FHs or within 60 calendar days, whichever occurs first after the effective date of this AD, perform an inspection of the master compressor VG actuator, SIN 30401, and slave compressor VG actuator, SIN 30402, in accordance with the Accomplishment Instructions, paragraphs 3.A.(1) and (2), of GE CF34-8C SB 75-0028 or GE CF34-8E SB 75-0023, as applicable to the engine model.

(3) For engines not in service, before further flight, perform an inspection of the master compressor VG actuator, SIN 30401, and slave compressor VG actuator, SIN 30402, in accordance with the Accomplishment Instructions, paragraphs 3.A.(1) and (2), of GE CF34-8C SB 75-0028 or GE CF34-8E SB 75-0023, as applicable to the engine model.

(4) If the master compressor VG actuator, SIN 30401, or the slave compressor VG actuator, SIN 30402, does not pass any inspection required by paragraphs (g)(1) through (3) of this AD, before further flight, remove the part and replace with a part eligible for installation.

#### **(h) Reporting Requirements**

Within 10 days after performing the inspections required by paragraphs (g)(1) through (3) of this AD, in accordance with paragraphs 3.A.(1) and (2), of GE CF34-8C SB 75-0028 or GE CF34-8E SB 75-0023, send your inspection report form, pictures, or report findings to GE at [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com).

#### **(i) Special Flight Permit**

Special flight permits are prohibited.

#### **(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the

certification office, send it to the attention of the person identified paragraph (k) of this AD. Information may be emailed to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(k) Related Information**

For more information about this AD, contact Scott M. Stevenson, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7132; fax: (781) 238-7199; email: scott.m.stevenson@faa.gov.

**(l) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) GE CF34-8C Service Bulletin (SB) 75-0028 R00, dated November 2, 2021.

(ii) GE CF34-8E SB 75-0023 R00, dated November 2, 2021.

(3) For GE service information identified in this AD, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: <https://www.ge.com>.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on December 1, 2021.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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